



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,734	03/18/2004	Alex A. Behfar	BIN 9	5050
7590 08/18/2005			EXAMINER	
William A. Blake Jones, Tullar & Cooper, P.C. P.O. Box 2266 Eads Station Arlington, VA 22202			VANNUCCI, JAMES	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/802,734

Applicant(s)

BEHFAR ET AL

Examiner

Jim Vannucci

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-30 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 19-22 and 25-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Goto(6,839,376).

Claim 1, figure 6 discloses a semiconductor laser cavity(10, 20 & 130) having three segments and an output, etched gaps extending through the segments, and a distributed Bragg reflector(23).

Claim 2, a total length for the laser cavity of between 10 and 10,000 micrometers is disclosed(col. 6, lines 37-40).

Claim 3, the disclosed etched gap has a length of between 0.001 and 10 micrometers(col. 8, lines 22-23).

Claim 4, figure 5 discloses a photonic device(51) connected to an output of the laser cavity.

Claim 19, the three segments(10, 20 & 130) disclosed in figure 6 have multiple etched gaps extending through the segments.

Claim 20, the multiple etched gaps disclosed in figure 6 are first and second gaps spaced apart along the three segments(10, 20 & 130) and are separated by a length of a segment.

Claim 21, each of the gaps is a pair of spaced-apart etched facets having a length of between about 0.001 micro-meters and about 10.0 micro-meters that extend completely through the laser cavity(col. 8, lines 22-23).

Claim 22, each facet disclosed in figure 6 is perpendicular to the length of the segment.

Claim 25, figure 6 of Goto discloses a solid state waveguide cavity having an etched entrance facet and an etched exit facet(11), and an etched gap extending through the solid state waveguide cavity between the entrance and exit facets having a pair of parallel etched facets spaced apart by a length of between about 0.001 micro-meters and 10 micro-meters(col. 8, lines 22-23).

Claim 26, figure 6 of Goto discloses multiple etched gaps spaced along the waveguide cavity.

30. (New) The device of claim 29, wherein said photonic device is a V-shaped

(New) The device of claim 28, wherein said exit facet is coupled to an waveguide structure having an etched facet at or near the Brewster angle at a distal

end.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 7-12, 17-18, 23-24 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto in view of Spitzer(5,241,555).

Goto does not disclose the laser in the shape of a ring.

Claims 5 and 28, Spitzer discloses a ring laser(abstract) for use in a gyroscope(col. 1, lines 14-16).

Claims 7 and 10, Goto discloses a semiconductor laser cavity having three segments and an output, an etched gap extending through the segments, and a photonic device connected to the output of the laser.

Goto does not disclose an etched facet at the Brewsjer angle.

Figure 9 of Spitzer discloses a facet(16) at the Brewster angle to eliminate reflections(col. 3, lines 13-16) at one end of a photonic device(78).

Claim 8, see claim 2 above.

Claim 9, see claim 3 above.

Claim 11, figure 6 of Goto discloses a cavity that includes an entrance facet and an exit facet.

Claims 12 and 29, figure 6 of Goto discloses an entrance facet that is directly coupled to another photonic device(23).

Claim 17, the three segments disclosed in figure 6 of Goto incorporate multiple etched gaps extending through the three segments.

Claim 18, the gaps disclosed in figure 6 of Goto are spaced-apart etched facets.

Claim 23, figure 9 of Spitzer discloses a facet(16) that is angled with respect to the length of the segment.

Claim 24, the length of the segment between the first and second gaps disclosed in figure 6 of Goto is offset from adjoining segments to compensate for the refraction of light at the interfaces of the laser segment and the gaps.

Claim 27, figure 9 of Spitzer discloses gaps that are angled and figure 6 of Goto discloses offset segments(10, 20 & 130) of the waveguide cavity between adjacent gaps.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the ring shape and Brewster's angle orientation disclosed in Spitzer with the laser disclosed in Goto for improved performance and application of the device as disclosed in Spitzer.

5. Claims 6 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto in view of Zoll et al.(5,848,090).

Goto does not disclose a V-shaped laser.

Claims 6 and 30, figure 2 of Zoll discloses a V-shaped laser(10) to produce a nonlinear light path(col. 2, lines 3-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to form the laser disclosed in Goto in a V shape as disclosed in Zoll for improved device stability and reliability as disclosed in Zoll(abstract).

6. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto in view of Spitzer as applied above, and further in view of Zoll.

Goto and Spitzer do not disclose a V-shaped laser.

Claim 13, see claim 6 above.

Claim 14, if the laser disclosed in Goto and Spitzer were shaped into a V shape as disclosed in Zoll, the etched facet disclosed in Goto that would be at the Brewster angle would be at an end of the first leg of the V-shaped structure.

Claim 15, figure 2 of Zoll discloses first(9) and second(10) legs joined at corresponding ends to form a V-shaped structure where an exit facet(26) is positioned at the joint of the first and second legs(col. 4, lines 49-52).

It would have been obvious to one of ordinary skill in the art at the time of the invention to form the laser disclosed in Goto and Spitzer in a V shape as disclosed in Zoll to improve device stability and reliability as disclosed in Zoll.

***Allowable Subject Matter***

7. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter.

The following limitations are primarily responsible for distinguishing this claim over the prior art.

Regarding claim 16, the limitation concerning an entrance facet at a free end of the second leg of the V-shaped structure.

Proper motivation could not be found in the prior art to combine references that disclose these limitations with the references that disclose the other limitations recited in the claims of this application.

***Response to Arguments***

9. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

The recited limitations of the claims of this application have been referenced in the prior art of the rejections above along with proper motivation for combining the prior art references.



### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

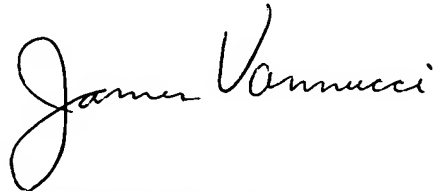
### ***Correspondence***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Jim Vannucci whose phone number is (571) 272-1820.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be

considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (571) 273-8300.



James Vannucci